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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/583,411

06/04/2007

Hideki Fujii

062654

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38834

7590

07/21/2010

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WASHINGTON, DC 20036

EXAMINER

JOYCE, WILLIAM C

ART UNIT

PAPER NUMBER

3656

NOTIFICATION DATE

DELIVERY MODE

07/21/2010

ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

patentmail@whda.com

<b>Office Action Summary</b>	<b>Application No.</b> 10/583,411	<b>Applicant(s)</b> FUJII ET AL.	
	<b>Examiner</b> William C. Joyce	<b>Art Unit</b> 3656	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-5 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-5 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. ____.                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date ____.  | 6) <input type="checkbox"/> Other: ____.                          |

### **DETAILED ACTION**

This is the First Office Action in response to the above identified patent application filed on June 20, 2006.

#### ***Priority***

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

#### ***Specification***

2. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

3. The abstract of the disclosure is objected to because the implied phrase "Provided is a" (line 1) must be deleted. Correction is required. See MPEP § 608.01(b).

#### ***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

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(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1, 2, and 4 are rejected under 35 U.S.C. 102(b) as being anticipated by Anderson (USP 3,143,867).

Anderson discloses a ball spline comprising: a spline shaft (10) having a plurality of lines of ball rolling faces extending in a longitudinal direction; and a spline nut (11) formed substantially as a cylinder with a hollow hole into which the spline shaft is fitted, having on an inner peripheral surface of the hollow hole load rolling faces opposed to the ball rolling faces of the spline shaft, and being assembled to the spline shaft through a large number of balls (45), and in that the spline shaft has a substantially circular sectional configuration and has in its periphery a plurality of lines of longitudinally extending torque transmission grooves arranged at equal intervals, with the ball rolling faces being formed on side surfaces of land parts situated between the torque transmission grooves, that is, on both sides in the width direction of each torque transmission grooves; and the distance between a pair of rows of balls rolling on the ball rolling faces situated on both sides of each of the land parts is set larger than the distance between a pair of rows of balls rolling on the ball rolling faces on both sides of each of the torque transmission grooves.

***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 1-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Komata (JP 06-241228).

Referring to Figure 2, Komata discloses a roller spline comprising: a spline shaft (1) having a plurality of lines of rolling faces extending in a longitudinal direction; and a spline nut (5) formed substantially as a cylinder with a hollow hole into which the spline shaft is fitted, having on an inner peripheral surface of the hollow hole load rolling faces opposed to the rolling faces of the spline shaft, and being assembled to the spline shaft through a large number of rollers (21), and in that the spline shaft has a substantially circular sectional configuration and has in its periphery a plurality of lines of longitudinally extending torque transmission grooves arranged at equal intervals, with the rolling faces being formed on side surfaces of land parts situated between the torque transmission grooves, that is, on both sides in the width direction of each torque transmission grooves; and the distance between a pair of rows of rollers rolling on the rolling faces situated on both sides of each of the land parts is set larger than the distance between a pair of rows of rollers rolling on the rolling faces on both sides of each of the torque transmission grooves.

Komata does not teach a plurality of balls disposed between the spline shaft and the spline nut. However, it was notoriously known in the art to provide either

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balls or rollers between mating components so as to reduce the friction therebetween while providing a predetermined operating capacity. Official Notice is taken with respect to providing either balls or rollers in a spline device, motivation being to reduce friction between the mating components while providing a predetermined operating capacity.

Alternatively, it would have been within the skill of one in the art at the time the invention was made to replace the rollers of Komata with balls since the examiner takes Official Notice of the equivalence of balls and rollers for their use in the bearing art and the selection of either of these known equivalents would have been within the level of ordinary skill in the art.

8. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over either Anderson (USP 3,143,867) or Komata (JP 06-241228) as applied to claim 1 above, and further in view of Honma (JP 10-196652).

Neither Anderson nor Komata teach a belt for supporting the balls at a predetermined interval. Honma teaches a ball spline device having a belt. It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide either one of Anderson or Komata with a belt, as taught by Honma, motivation being to provide a smooth and quite circulation of balls within the ball spline device.

***Conclusion***

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. See USP 4983049, 4764032, 2908152.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to William C. Joyce whose telephone number is (571) 272-7107. The examiner can normally be reached on Monday - Thursday 7:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Ridley can be reached on (571) 272-6917. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/William C. Joyce/  
Primary Examiner, Art Unit 3656